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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,744	05/17/2007	Marco Friedrich	5367-256PUS	1203
7590 Thomas Langer Cohen Pontani Lieberman & Pavane 551 Fifth Avenue Suite 1210 New York, NY 10176			EXAMINER PATEL, ISHWARBHAI B	
			ART UNIT 2841	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/590,744

**Applicant(s)**

FRIEDRICH ET AL.

**Examiner**

Ishwarbhai B. Patel

**Art Unit**

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2010.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.  
4a) Of the above claim(s) 26-31 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-25 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 17 May 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/GS-08)  
Paper No(s)/Mail Date 8/25/06/5/17/07  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of specie I, claims 1-25 in the reply filed on April 15, 2010 is acknowledged. The traversal is on the ground(s) that there is no provision in the PCT for making an election of species. Instead, the relevant provisions of the PCT refer only to the claimed subject matter. The concept of species is not known under the PCT. Further, according to PCT rule 13.4, the application should be permitted to contain dependent claims even where a feature of any of them could be considered as constituting an invention in itself. In this regard, the Examiner could be pointed to the fact that claim 26 (species II) is a dependent claim which depends on pending claim 1.

This is not found persuasive because as applied to claim the prior art to Kuan (modified) discloses the structure as recited. There is no special technical feature in the application under PCT rule 13.1. Further, searching for all the different invention including the specie, will be burdensome to the examiner.

**However, if a generic claim is found to be allowable, the claims depending upon the allowable claims or otherwise include all the limitations of an allowed generic claim, will be rejoined and fully examined for patentability.**

The requirement is still deemed proper and is therefore made FINAL.

### ***Information Disclosure Statement***

2. The information disclosure statement filed on August 25, 2006 is partly considered as fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of

each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The copies of the foreign reference not found in the file on record. The copies could not be retrieved by the office. Applicant is requested to submit the copies of the references.

#### ***Priority***

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been received and placed of record in the file.

#### ***Drawings***

4. The drawings are objected to because the figures are improperly cross hatched. All of the parts shown in section, and only those parts, must be cross-hatched. The cross-hatching patterns should be selected from those shown on page 600-114/115 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP § 608.02.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

5. The abstract of the disclosure is objected to because of the presence of legal phraseology "comprising." It may be replaced by "including" or "having."

Correction is required. See MPEP § 608.01(b).

6. The disclosure is objected to because of the following informalities:

(a) The reference numbers of the claims to be removed from the description as the final numbering might be different than the original one, which will create discrepancy as to the detail description with that of the related claims (such as, page 1, line 32-35 of the specification).

(b) The layout of the specification should be as per the guide lines shown below.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 3, 4, 6-8, 10, 11, 15, 16, 19 and 21-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Kuan (US Patent No. 6,860,620).

Regarding claim 1, Kuan, generally in figures 1-5, discloses a light emitting diode arrangement, comprising a flexible circuit board (103 with tracks 121-126) and at least one high power light emitting diode (102) mounted onto said flexible circuit board.

Regarding claim 3, Kuan further discloses the high power light emitting diode is soldered onto the flexible circuit board (column 4, line 40-50).

Regarding claim 4, Kuan further discloses the flexible circuit board contains at least one flexible carrier layer (103).

Regarding claim 6, Kuan further discloses the flexible printed circuit board contains a thermally conductive layer which is in thermal contact with the high power light emitting diode (122, 125).

Regarding claim 7, Kuan further discloses the thermally conductive layer contains a metal (column 3, line 42-49).

Regarding claim 8, Kuan further discloses the thermally conductive layer contains copper (column 3, line 42-49).

Regarding claim 10, Kuan further discloses the flexible circuit board contains electrical conductor tracks, the thermally conductive layer and the electrical conductor tracks being situated in one plane of the flexible circuit board (see figure 4 and 5).

Regarding claim 11, Kuan further discloses the thermally conductive layer and the electrical conductor tracks contain the same metal (column 3, line 42-49).

Regarding claim 15, Kuan further discloses side of the flexible circuit board which is remote from the high power light emitting diodes has an adhesive-containing layer (104).

Regarding claim 16, Kuan further discloses the adhesive-containing layer is formed by a double sided adhesive tape (as it is bonded on both sides, with 103 and 105).



Regarding claim 19, Kuan further discloses the adhesive-containing layer is covered with a protective film (105).

Regarding claims 21-25, Kuan further discloses a multiplicity of high power light emitting diodes are provided, which diodes are connected in series (claim 21); a pair of contact areas is provided for each high power light emitting diode (claim 22); has sections, each section having a high power light emitting diode and the associated pair of contact areas (claim 23); the sections are arranged as repeating structures (claim 24) and the sections are arranged in a series (claim 25), as disclosed in figure 1-5.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2, 9, 12-14, 17-18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuan (US Patent No. 6,860,620) as applied to claim 1 above.

Regarding claim 2, Kuan discloses all the features of the claimed invention as applied to claim 1, including a high power light emitting diode but does not explicitly disclose the diode with a power consumption of at least 300 mW.

However, diode with 300 mW power is known and the diode will be selected to have desired light intensity in the system.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the arrangement of Kuan with the diode having a power consumption of at least 300 mW, in order to have desired light intensity in the system.

Regarding claim 9, Kuan discloses all the features of the claimed invention as applied to claim 1, including the high power light emitting diode and the thermally conductive layer but does not disclose the high power light emitting diode is soldered onto the thermally conductive layer. Kuan discloses the using a thermally conductive glue.

However, soldering the diode to the thermally conductive layer is old and known in the art to have better structural connection.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the arrangement of Kuan with the high power light emitting diode soldered onto the thermally conductive layer, in order to have better structural connection.

Regarding claims 17 and 18, Kuan discloses all the features of the claimed invention as applied to claim 1, including the adhesive-containing layer but does not disclose the adhesive-containing layer is heat-resistant up to temperatures of 250.degree. C. and the adhesive-containing layer has a thickness of at most 60  $\mu\text{m}$ .

However, the adhesive layer is connected to thermally conductive layer and also transmit the heat. Therefore should be able to withstand the heat generated as well thin enough to transmit the heat as fast as possible.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the arrangement of Kuan with the adhesive-containing layer having heat-resistant up to temperatures of 250.degree. C. and the adhesive-containing layer having a thickness of at most 60  $\mu\text{m}$ , to withstand the temperature without damage and to transmit the heat as fast as possible.

Regarding claim 20, Kuan discloses all the features of the claimed invention as applied to claim 1, including the protective film but does not disclose the protective film contains a plastic. However, depending upon use, if the system is to be used on another fixture which it self is going to work as a heat sink, the heat sink may not be attached to the arrangement but a plastic removable sheet is attached, which is known in the art.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the arrangement of Kuan with the protective film contains a plastic, in order to facilitate the storage of the arrangement before actual use.

Regarding claims 12-14, Kuan discloses all the features of the claimed invention as applied to claim 1, including the flexible circuit board but does not disclose an insulating layer is applied to one of the surfaces of the flexible circuit board (claim 12);

the insulating layer has cutouts for making electrical and thermal contact with the high power light emitting diode (claim 13) and the insulating layer contains a soldering resist (claim 14).

However, providing solder mask on the board is old and known in the art to protect the surface from environmental damage.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the arrangement of Kuan with the insulating layer containing a solder mask as recited in claims 12-14, in order to protect the surface from environmental damage.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuan as applied to claim 4 above, and further in view of Becker (US Patent No. 7,273,987).

Regarding claim 5, Kuan discloses all the features of the claimed invention as applied to claim 1, including the flexible carrier layer but does not disclose the layer contains at least one of the following materials: polyimide, polyethylene naphthalate, polyester, FR4. Kuan discloses synthetic material such as polyamide (column 3, line 15-20).

Becker discloses light emitting diode arrangement and recite the flexible substrate made of polyimide (column 4, line 46-67).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the arrangement of Kuan with the flexible substrate made of polyimide.

Further, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin* 227 F.2d 197, 125 USPQ 416 (CCPA 1960)).

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Luk (US Patent Application Publication No. 2004/0037080 disclose flexible board with LED mounted on the board.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwarbhai B. Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinhee Lee can be reached on (571) 272 1977. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

July 6, 2010

/Ishwarbhai B Patel/  
Primary Examiner, Art Unit 2841